

REMARKS

Claims 1-4 are pending in this application. By this Amendment, claim 1 is amended. No new matter is added. Reconsideration of this application is respectfully requested.

I. Objection to the Claims

The Office Action objects to claim 1 for including an informality. Specifically, the Office Action objects to claim 1 for not including a comma after the phrase "gap layer" at line 10. It is respectfully submitted that the foregoing amendments obviate this objection.

Withdrawal of the objection is respectfully requested.

II. §103 Rejection Over Daby/Liu

The Office Action rejects claims 1 and 2 under 35 U.S.C. §103(a) over U.S. Patent No. 6,683,749 to Daby et al. ("Daby") in view of U.S. Patent No. 6,524,491 to Liu et al. ("Liu"). This rejection is respectfully traversed.

Independent claim 1 recites a method of manufacturing a thin-film magnetic head, that includes, among other features, patterning the second magnetic pole layer and the gap layer by etching at the same time while protecting the first magnetic pole layer from etching with a mask formed by the gap layer and the insulating layer formed about the residual area of the first magnetic pole layer, so that a width of the second magnetic pole layer in the track width direction is smaller than that of the residual area.

Support for the above features may be found throughout the original specification and drawings. For example, specific support may be found at least at paragraphs [0054]-[0056] and Figs. 13-14 of the specification. As described at paragraph [0056], an insulating layer about the residual area of the first magnetic pole layer prevents the etching process from cutting into the magnetic material of the lower magnetic pole layer 10. In this manner, material from the lower magnetic pole layer 10 is prevented from adhering to the root of the first upper magnetic pole part 26a and its vicinity and obstructing, as described in paragraph

[0006], the etching process used to reduce the width of the second magnetic pole layer in the track width direction.

The Office Action acknowledges that Daby does not teach "patterning the second magnetic pole layer by etching while using a mask, so that a width of the second magnetic pole layer in the track width direction is smaller than that of the residual area." However, the Office Action asserts that Liu teaches such a feature and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Daby to include the above feature as taught by Liu because doing so would result in a thin-film magnetic head that would provide the benefits of reduced edge erasure and adjacent track writing during operation. This is incorrect.

For example, Daby does not disclose etching top pole 14 and therefore cannot reasonably be considered to teach or suggest "patterning the second magnetic pole layer and the gap layer by etching at the same time while protecting the first magnetic pole layer from etching with a mask formed by the gap layer and the insulating layer formed about the residual area of the first magnetic pole layer" (emphasis added), as recited in claim 1.

Further, the method described in Liu does not use an insulating layer in the top layer etching process. Therefore, when forming the top layer (UP), in Liu, the etching progress is retarded due to the etched magnetic material from the bottom pole (S2B), as stated in paragraph [0006] of the present application. Therefore, Liu cannot reasonably be considered to teach or suggest "patterning the second magnetic pole layer and the gap layer by etching at the same time while protecting the first magnetic pole layer from etching with a mask formed by the gap layer and the insulating layer formed about the residual area of the first magnetic pole layer" (emphasis added), as recited in claim 1.

In addition, neither Daby, Liu nor the other cited documents recognize the problem, addressed by the present application, that the etched magnetic material of the lower magnetic

pole layer regions farther from the upper magnetic pole layer adheres to the upper magnetic pole during the etching process of the upper magnetic pole. Therefore, the applied prior art references fail to recognize, much less address, a problem addressed by the invention of claim 1.

For at least these reasons, the combination of Daby and Liu cannot reasonably be considered to teach or suggest the combination of features recited in claim 1. Claims 2-4 depend from claim 1 and, therefore, the combination of Daby and Liu cannot reasonably be considered to teach or suggest all the features recited in dependent claims 2-4 for at least the reasons addressed above with respect to claim 1 as well as for the additional features that claims 2-4 recite.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-4 under §103(a) over Daby in view of Liu are respectfully requested

III. §103 Rejection Over Daby/Liu and Schultz

The Office Action rejects claim 3 under 35 U.S.C. §103(a) as unpatentable over Daby in view of Liu and further in view of U.S. Patent No. 5,640,753 to Schultz et al. ("Schultz"). This rejection is respectfully traversed.

Claim 3 depends from claim 1. Schultz fails to overcome the above-described deficiency of the Daby/Liu combination with respect to claim 1. Therefore, the asserted combination of Daby/Liu and Schultz does not teach or suggest the combinations of features recited in claim 1.

For at least these reasons, it is respectfully submitted that claim 3 is patentably distinguishable over the applied art for at least the reasons discussed above with respect to claim 1, as well as for additional features that claim 3 recites. Withdrawal of the rejection is respectfully requested.

IV. §103 Rejection Over Daby/Liu and Sasaki

The Office Action rejects claim 4 under 35 U.S.C. §103(a) as unpatentable over Daby in view of Liu and further in view of U.S. Patent No. 6,278,580 to Sasaki et al. ("Sasaki").

This rejection is respectfully traversed.

Claim 4 depends from claim 1. Sasaki fails to overcome the above-described deficiency of the Daby/Liu with respect to claim 1. Therefore, the asserted combination of Daby/Liu and Sasaki does not teach or suggest the combinations of features recited in claim 1.

For at least these reasons, it is respectfully submitted that claim 4 is patentably distinguishable over the applied art for at least the reasons discussed above with respect to claim 1, as well as for additional features that claim 4 recites. Withdrawal of the rejection is respectfully requested.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-4 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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